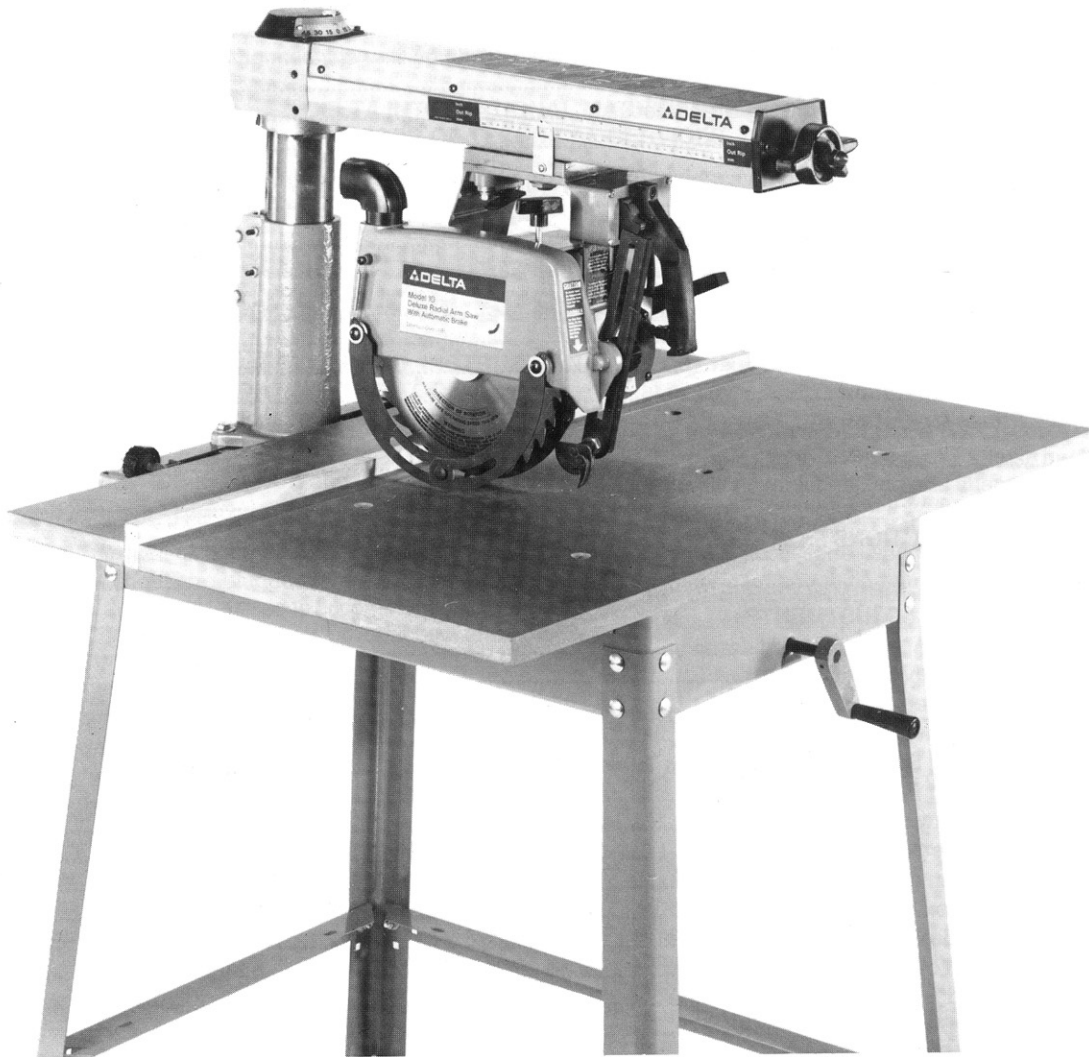


Model 10 Deluxe Radial Arm Saw (Model 33-990)



DATED 12-19-96

PART NO. 424-12-651-0024
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INSTRUCTION MANUAL

 **DELTA**

TABLE OF CONTENTS

SAFETY RULES	3
ADDITIONAL SAFETY RULES FOR RADIAL ARM SAWS	4
OPERATING CONTROLS	4
UNPACKING AND CLEANING	5
ASSEMBLY	5
Tools Needed For Assembly And Adjustments	5
Assembling Cuttinghead To Track Arm	5
Assembling End Cap, Clamp Knob And Index Knob To Track Arm	6
Assembling Legs To Saw Base	8
Checking And Adjusting Table Mounting Brackets	8
Assembling The Table	10
Leveling The Saw	11
Fastening Saw To The Floor	11
EXTENSION CORDS	12
CONNECTING SAW TO POWER SOURCE	
Power Connections	12
Motor Specifications	12
Grounding Instructions	12
120 Volt Single Phase Operation	13
240 Volt Single Phase Operation	13
ON/OFF SWITCH	14
MOTOR	14
CHANGING VOLTAGE CONNECTIONS	14
OVERLOAD PROTECTION	14
OPERATING CONTROLS AND ADJUSTMENTS	
Adjusting Ball Bearings Against Track	15
Adjusting Tension On Elevating Column	15
Adjusting Tension On Track Arm Index	15
Adjusting Saw Blade Travel Square With Fence	16
Checking And Adjusting Saw Blade Square With Table	17
Checking And Adjusting Front Table	17
Removing Heeling In Saw Blade Cut	18
Adjusting Out-Rip Scale	18
Adjusting In-Rip Scale	19
Positive Stop Yoke Index	19
Positive Stop Bevel Index	19
Changing Position Of Yoke Clamp Handle	19
Assembling Blade And Blade Guard To Machine	20
Changing Position Of Bevel Clamp Handle	21
Adjusting Splitter And Anti-kickback Fingers	21
Auxiliary Table Board Facing	21
Using A Table Extension	21
OPERATIONS	
Cross-Cutting	22
Miter Cutting	22
Compound Miter Cutting	22
Cross-Cut Stop	23
Ripping	23
Out-Ripping	23
In-Ripping	23
Constructing A Push Stick	24
WARRANTY	25

SAFETY RULES

Woodworking can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result. Safety equipment such as guards, push sticks, hold-downs, featherboards, goggles, dust masks and hearing protection can reduce your potential for injury. But even the best guard won't make up for poor judgment, carelessness or inattention. Always use common sense and exercise caution in the workshop. If a procedure feels dangerous, don't try it. Figure out an alternative procedure that feels safer. REMEMBER: Your personal safety is your responsibility.

This machine was designed for certain applications only. Delta Machinery strongly recommends that this machine not be modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, DO NOT use the machine until you have first contacted Delta to determine if it can or should be performed on the product.

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WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

- 1. FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE TOOL.** Learn the tool's application and limitations as well as the specific hazards peculiar to it.
- 2. KEEP GUARDS IN PLACE** and in working order.
- 3. ALWAYS WEAR EYE PROTECTION.**
- 4. GROUND ALL TOOLS.** If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle. If an adapter is used to accommodate a two-prong receptacle, the adapter lug must be attached to a known ground. Never remove the third prong.
- 5. REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it "on."
- 6. KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.
- 7. DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well-lighted.
- 8. KEEP CHILDREN AND VISITORS AWAY.** All children and visitors should be kept a safe distance from work area.
- 9. MAKE WORKSHOP CHILDPROOF** - with padlocks, master switches, or by removing starter keys.
- 10. DON'T FORCE TOOL.** It will do the job better and be safer at the rate for which it was designed.
- 11. USE RIGHT TOOL.** Don't force tool or attachment to do a job for which it was not designed.
- 12. WEAR PROPER APPAREL.** No loose clothing, gloves, neckties, rings, bracelets, or other jewelry to get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
- 13. ALWAYS USE SAFETY GLASSES.** Wear safety glasses. Everyday eyeglasses only have impact resistant lenses; they are not safety glasses. Also use face or dust mask if cutting operation is dusty.
- 14. SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.
- 15. DON'T OVERREACH.** Keep proper footing and balance at all times.
- 16. MAINTAIN TOOLS IN TOP CONDITION.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- 17. DISCONNECT TOOLS** before servicing and when changing accessories such as blades, bits, cutters, etc.
- 18. USE RECOMMENDED ACCESSORIES.** The use of accessories and attachments not recommended by Delta may cause hazards or risk of injury to persons.
- 19. REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure switch is in "OFF" position before plugging in power cord.
- 20. NEVER STAND ON TOOL.** Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.
- 21. CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function - check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
- 22. DIRECTION OF FEED.** Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
- 23. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.** Don't leave tool until it comes to a complete stop.
- 24. DRUGS, ALCOHOL, MEDICATION.** Do not operate tool while under the influence of drugs, alcohol or any medication.
- 25. MAKE SURE TOOL IS DISCONNECTED FROM POWER SUPPLY** while motor is being mounted, connected or reconnected.
- 26. WARNING:** The dust generated by certain woods and wood products can be injurious to your health. Always operate machinery in well ventilated areas and provide for proper dust removal. Use wood dust collection systems whenever possible.

ADDITIONAL SAFETY RULES FOR RADIAL SAWS

1. **KEEP** saw blade sharp and free of all rust and pitch.
2. **KEEP** blade and arbor flanges free from dirt and grease.
3. **MAKE SURE** end plates are securely fastened to track arm before using saw.
4. **BE SURE** that all clamp handles are properly tightened before operating machine.
5. **DO NOT** perform any cutting operation freehand, that is without using the fence to support or guide the work.
6. **WHEN FINISHED** cross-cutting, always return the cuttinghead to the rear of the track arm.
7. **ALWAYS** follow warning on saw guard for instructions on ripping to be absolutely certain of not ripping from the wrong end.
8. **KNOW HOW** to reduce the risk of kickback. Always use anti-kickback fingers when ripping. The guard should be lowered on the infeed end and the anti-kickback attachment adjusted accordingly.
9. **NEVER** feed work into the anti-kickback end of the machine.
10. **ALWAYS** turn off power and wait until saw blade stops turning before moving workpiece or changing operational settings.
11. **SHUT OFF** the power and do not leave until the blade has come to a complete stop.
12. **THE USE** of accessories or attachments not recommended by Delta may result in risk of injury.
13. **DISCONNECT** the machine from power source before servicing or changing blades.
14. **DIRECTION OF FEED.** On ripping operations, feed work into the blade or cutter against the direction of rotation of the blade or cutter only.
15. **ALWAYS** use pushstick when ripping narrow work.
16. **KEEP** hands out of path of saw blade.
17. **NEVER** reach around or in back of saw blade.
18. **RETURN** carriage to full rear position after each cross-cut operation.
19. **USE** only 10" saw blades with a 5/8" arbor hole.
20. **SAVE THESE INSTRUCTIONS.** Refer to them frequently and use them to instruct others.

OPERATING CONTROLS

The following is an explanation of the operating controls of the Delta 10" Radial Saw. We suggest you study these explanations carefully to familiarize yourself with the controls before turning on the power, to avoid damage to the saw or personal injury.

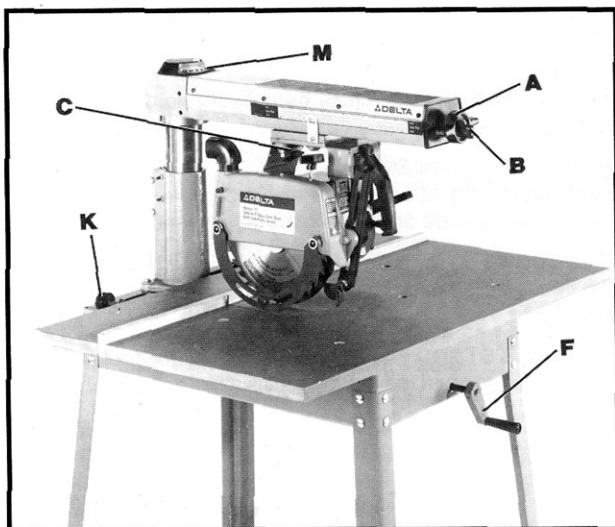


Fig. 2

A – TRACK ARM CLAMP KNOB. Controls swing of track arm for all miter cutting operations. Locks track arm at any angle for the full 360° rotation. To rotate track arm loosen clamp knob and rotate arm. The arm will stop at the 0° and 45° positions right and left. To move the arm past these points the track arm index knob (B) must be pulled out.

B – TRACK ARM INDEX KNOB. Locates 0° and 45° position, right and left, of the track arm.

C – YOKE INDEX LEVER. Locates each 90° position of the yoke for ripping or cross-cutting operations. When rotating the yoke the yoke clamp handle must first be loose.

D – YOKE CLAMP HANDLE. The yoke clamp handle must be loose when rotating the yoke to the rip or cross-cut position.

E – ANTI-KICKBACK DEVICE. When ripping, the yoke is positioned and clamped so that the blade is parallel to the fence. The rear of the blade guard is lowered until it almost touches the workpiece. The anti-kickback rod is then lowered so that the fingers catch and hold the workpiece. *Never rip from the anti-kickback end of the blade guard.*

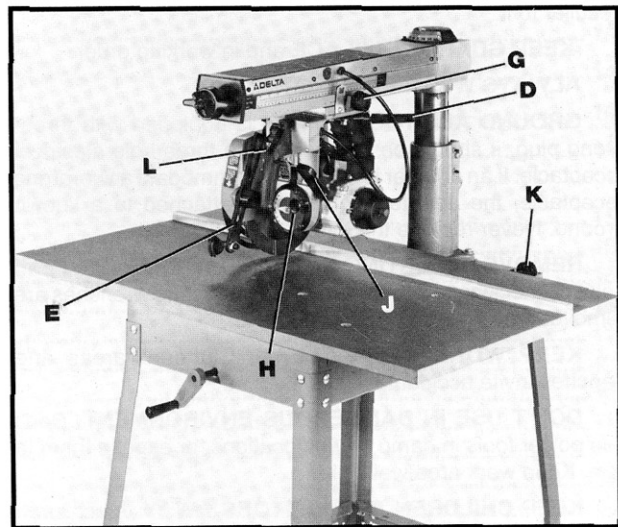


Fig. 3

F – OVERARM ELEVATING HANDLE. Controls the depth of cut in all operations. Turning the handle raises or lowers the overarm.

G – CUTTINGHEAD CLAMP KNOB. Locks cuttinghead at any position on the track arm. When ripping the cutting clamp knob must be tight.

H – BEVEL INDEX KNOB. Locates 0° and 45° and 90° positions of the motor when bevel cutting. When tilting the motor for bevel cutting, the bevel clamp handle must first be loose.

J – BEVEL CLAMP LEVER. Controls tilt of motor for bevel cutting operations. Locks motor at any desired angle on the bevel scale.

K – TABLE CLAMP KNOBS. Allows the operator to quickly set the desired fence position.

L – ON-OFF SWITCH. Conveniently placed at eye level; switch can be turned on or off in an instant for added operator protection.

M – MITER SCALE. Indicates degrees left and right for setting track arm.

UNPACKING AND CLEANING

Carefully unpack the machine and all loose items from the shipping container. Remove any protective coating from the machined surfaces of the saw. This coating may be removed with a soft cloth moistened with kerosene. (Do not use acetone, gasoline or lacquer thinner for this purpose). After cleaning, cover all unpainted surfaces with a good quality paste wax).

ASSEMBLY

TOOLS NEEDED FOR ASSEMBLY AND ADJUSTMENTS

Your Delta Radial Arm Saw can be assembled and adjusted using a few common hand tools including:

Phillips head screwdriver
Flat blade screwdriver
Hammer
7/16" Wrench
1/2" Wrench

9/16" Wrench
5/8" Wrench
11/16" Wrench
5/32" Allen Key
Framing Square
Adj. Combination square

ASSEMBLING CUTTINGHEAD TO TRACK ARM

1. Turn elevating crank (A) Fig. 4, clockwise, and raise track arm (B).
2. Remove packing material from around cuttinghead assembly (C).

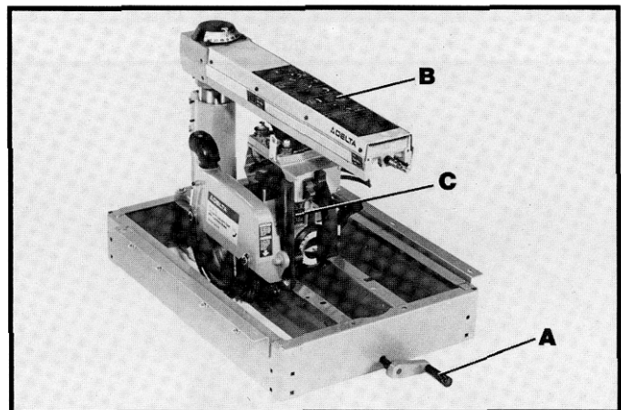


Fig. 4

3. Carefully lift cuttinghead assembly (C) Fig. 5, straight up off the saw base (D). Align four roller bearings (E) Figs. 5 and 6, with two inner track channels (F) of track arm.

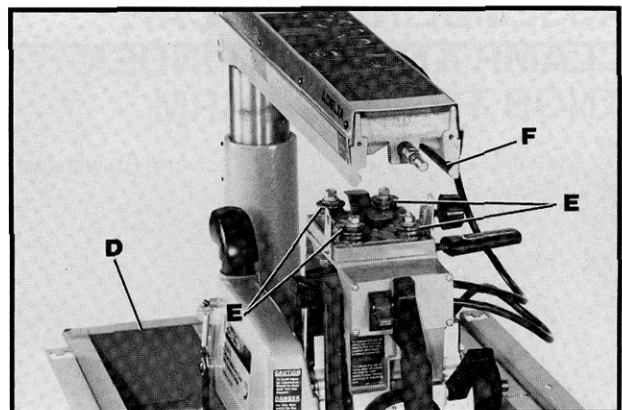


Fig. 5

4. Press down on spring stop (G) Fig. 5, and carefully slide cutterhead assembly (C) into track channels (F). **IMPORTANT:** Before releasing cuttinghead assembly (C) Fig. 6, make certain it will not roll forward in the track arm (B).

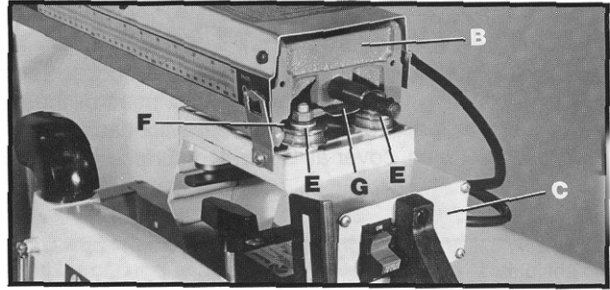


Fig. 6

5. Assemble spring (H) Fig. 7, and cuttinghead clamp knob (J) to cuttinghead (C) as shown. Turn knob (J) clockwise and clamp cuttinghead assembly (C) firmly to the track arm (B).

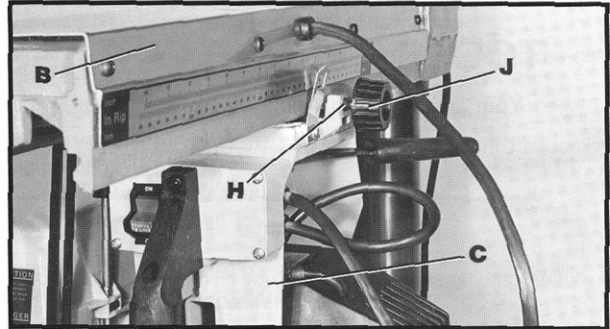


Fig. 7

6. Remove four hex head screws, one of which is shown at (K) Fig. 8, and remove saw from the shipping skid.

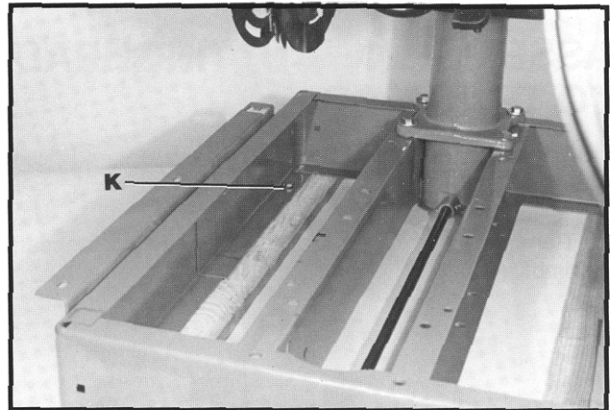


Fig. 8

ASSEMBLING END CAP, CLAMP KNOB AND INDEX KNOB TO TRACK ARM

1. Assemble end cap (A) Fig. 9, to track arm (B) with two 1/2 inch-long pan head screws (C).

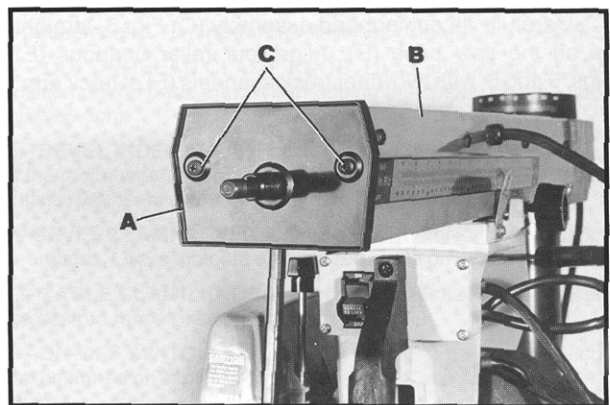


Fig. 9

2. Slide clamp knob adapter (D) Fig. 10, onto track arm index rod (E).

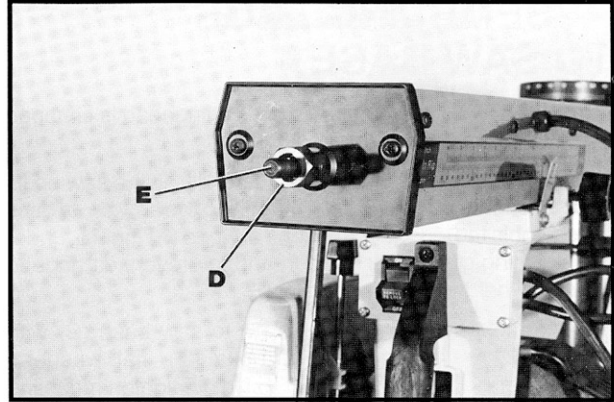


Fig. 10

3. Slide track arm clamp knob (F) Fig. 11, onto adapter (D). **NOTE:** Make certain track arm clamp (F) Fig. 11, is in a horizontal position as shown. If the track arm clamp knob (F) is positioned vertically, it may interfere with the cuttinghead.

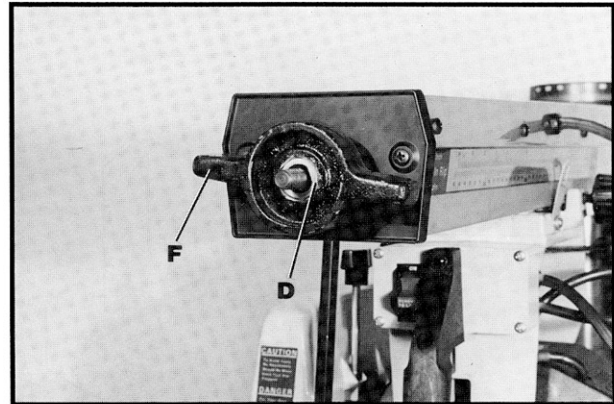


Fig. 11

4. Insert roll pin (G) Fig. 12, through index rod (E). Back off clamp knob (F) Fig. 12, against roll pin (G) to hold the pin in position in the index rod (E).

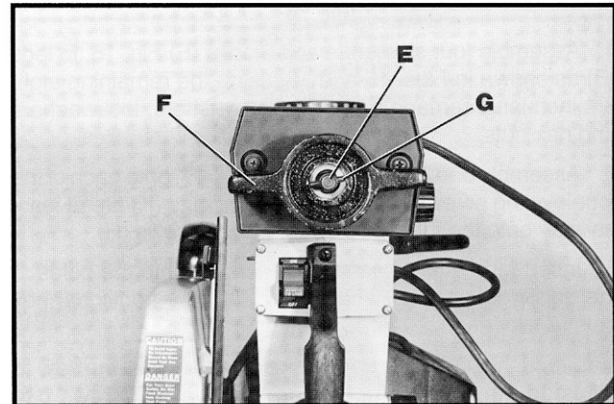


Fig. 12

5. Align recessed groove on the underside of index knob (H) Fig. 13, with roll pin (G) Fig. 12, and slide knob (H) Fig. 13, onto pin.

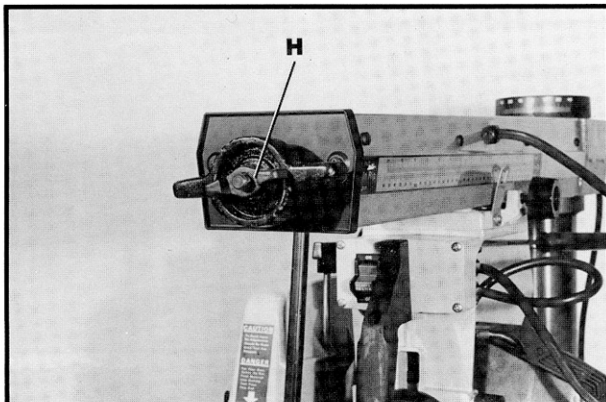


Fig. 13

6. Assemble acorn nut (K) Fig. 14, to the threaded end of index rod.

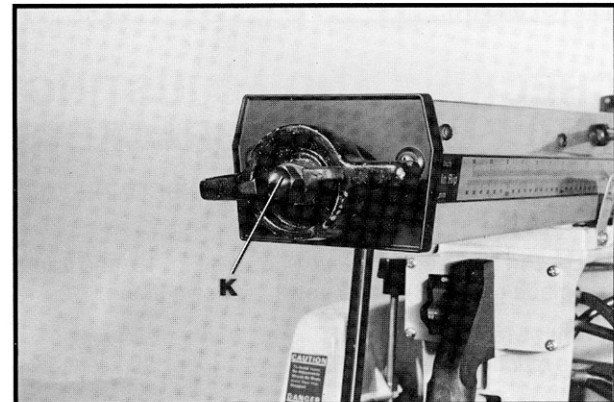


Fig. 14

ASSEMBLING LEGS TO SAW BASE

1. **IMPORTANT:** Make certain the cuttinghead is clamped securely at the back of the track arm.
2. Mechanically raise the saw or carefully tilt the saw on its back as shown in Fig. 15. **NOTE:** If tilting the saw on its back to assemble the legs, place a piece of wood (A) Fig. 15, under the elevating column for support and to prevent damage to the saw when assembling the legs.
3. Assemble four legs (B) Fig. 15, to saw base (C) with sixteen 3/4 inch-long carriage bolts (D), flat washers, lockwashers, and hex nuts. **NOTE:** Do not tighten mounting hardware at this time.

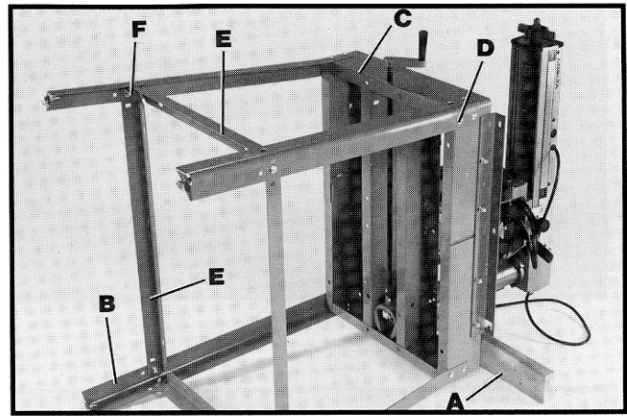


Fig. 15

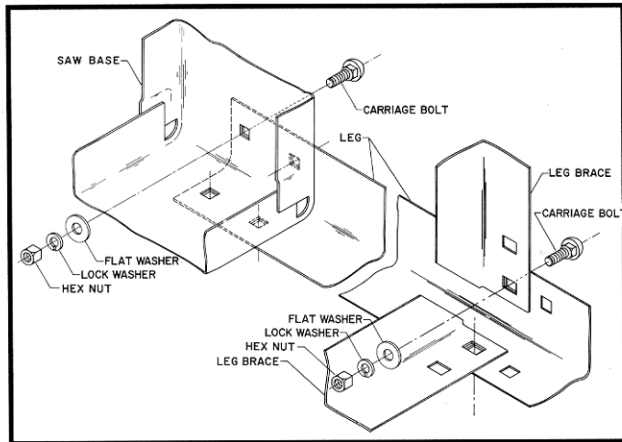


Fig. 16

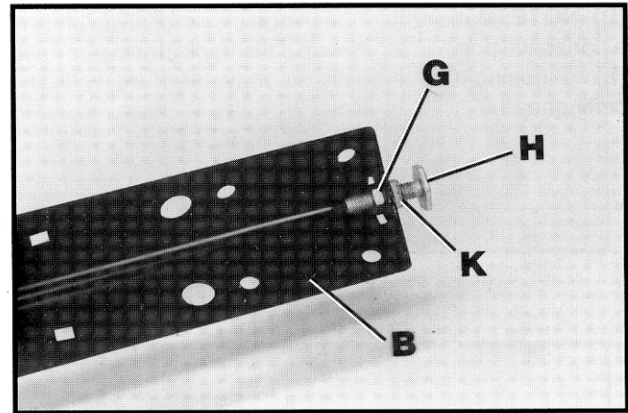


Fig. 17

4. Assemble four side and back braces (E) Fig. 15, to legs (B) as shown in Figs. 15 and 16, using the remaining eight 3/4 inch-long carriage bolts (F), flat washers, lockwashers and hex nuts.
5. Assemble one 3/8-16 hex nut (K) Fig. 17, onto each of the four leveling screws (H) so that the hex nuts (K) are at least halfway onto the threads of the leveling screws (H).
6. Insert four leveling screws (H) Fig. 17, into the holes at the bottom of legs (B) and fasten with four additional hex nuts (G).
7. Stand the saw in an upright position and level the saw to adjust to the floor surface using the leveling screws (H). Lock the leveling screws (H) Fig. 17, in position with hex nuts (G) and (K).



Fig. 18

CHECKING AND ADJUSTING TABLE MOUNTING BRACKETS

1. **MAKE CERTAIN THE MACHINE IS DISCONNECTED FROM THE POWER SOURCE.**
2. Loosen blade guard clamp knob (A) Fig. 18, and rotate saw blade guard (B) to the position shown in Fig. 19.
3. With wrenches (C) Fig. 19, supplied, loosen arbor nut (D) as much as possible. **NOTE:** Arbor nut has a left hand thread.

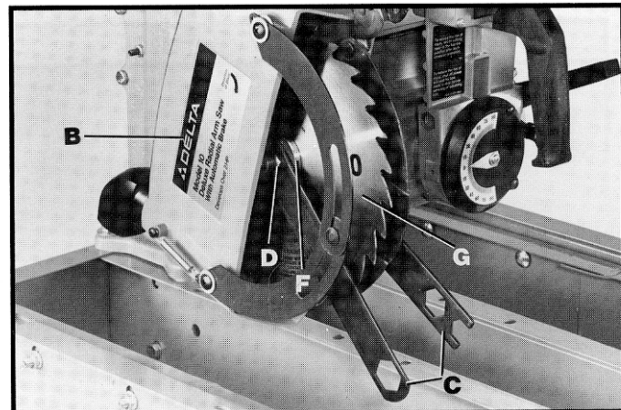


Fig. 19

4. Lift cam (E) Fig. 20, which holds the blade guard (B) Fig. 19, in position and move the blade guard (B), outer blade flange (F) and blade (G) outward. Continue to loosen arbor nut (D) Fig. 19, until blade guard, outer blade flange and saw blade can be removed from the saw arbor.

5. Push bevel clamp lever (H) Fig. 21, forward. Pull out bevel index knob (J) and rotate motor (K) to the vertical position as shown until bevel index engages. Push downward on bevel clamp lever (H).

6. Loosen cuttinghead clamp knob (L) Fig. 21, and slide cuttinghead assembly (M) to the front of track arm (N).

7. Loosen track arm clamp knob (P) Fig. 22. Rotate index knob (R) Fig. 22, to release positive stop and simultaneously swing track arm (N) to the left until arbor shaft (S) is directly over left front table mounting bracket (T) as shown. Tighten clamp knobs (L) and (P) Fig. 22.

8. Lower track arm (N) Fig. 22, until arbor shaft (S) lightly contacts left front table bracket (T). **IMPORTANT: DO NOT CHANGE THE HEIGHT OF THE TRACK ARM UNTIL BOTH TABLE MOUNTING BRACKETS (T) HAVE BEEN ADJUSTED.** Make certain nut (W) Fig. 22, is tight enough to hold front table mounting bracket in (T) in position.

9. Loosen track arm clamp knob (P) Fig. 23, swing track arm (N) to the left 45 degree position and tighten track arm clamp knob (P).

10. Loosen cuttinghead clamp knob (L) Fig. 23. Slide cuttinghead assembly (M) Fig. 23, inward until arbor shaft (S) is directly over left rear table mounting bracket (T). Check to see if arbor shaft (S) Fig. 23, lightly touches the left rear table mounting bracket (T), similar to the front of the mounting bracket; refer to **STEP 8**.

11. If an adjustment is necessary, loosen three hex nuts (V) Fig. 23, and adjust table mounting bracket (T) until it contacts arbor shaft (S). Tighten hex nuts (V) and (W) Fig. 23. Recheck the height of the left front and rear table mounting bracket (T), to the arbor shaft and readjust if necessary.

12. Check and adjust the table mounting bracket (T) Fig. 24, on the other side of the machine in the same manner. Tighten cuttinghead clamp knob.

13. Loosen clamp lever (H) Fig. 24, pull out bevel index knob (J) and turn motor (K) to the horizontal position. **NOTE:** Make certain bevel index lock engages and tighten clamp lever (H).

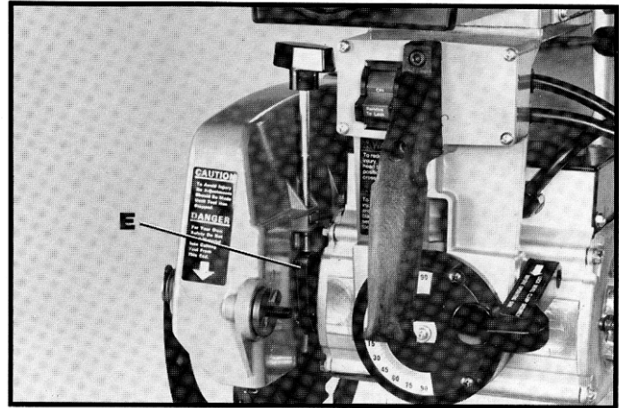


Fig. 20

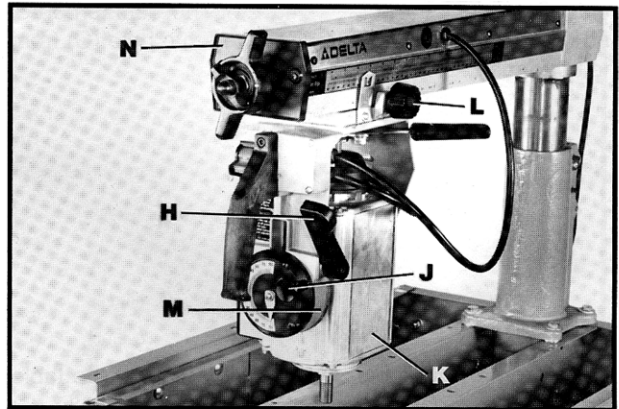


Fig. 21

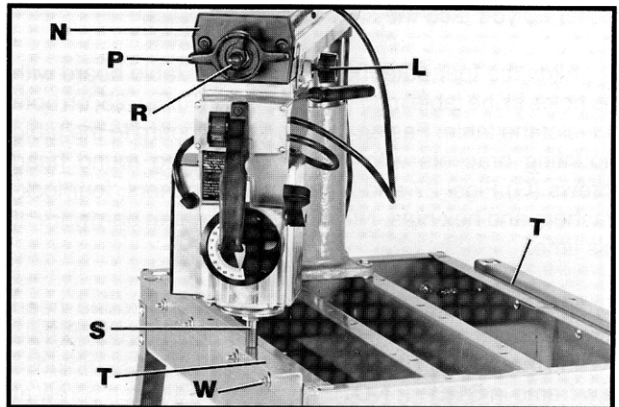


Fig. 22

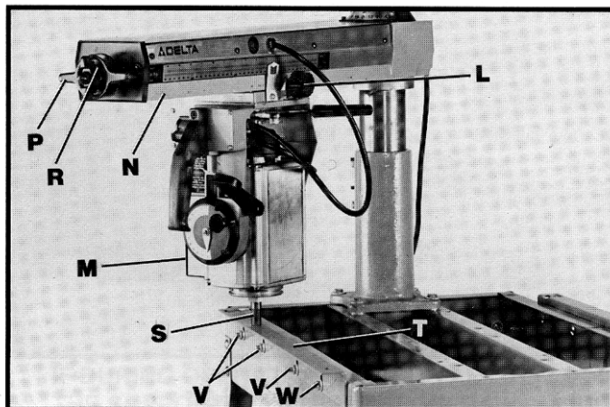


Fig. 23

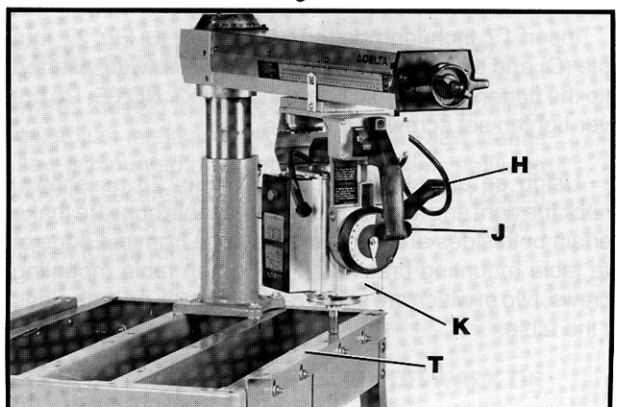


Fig. 24

ASSEMBLING THE TABLE

1. Assemble Tinnerman nut (A) Fig. 25, over hole (B) in the saw base. **NOTE:** Flat side of nut should face up.

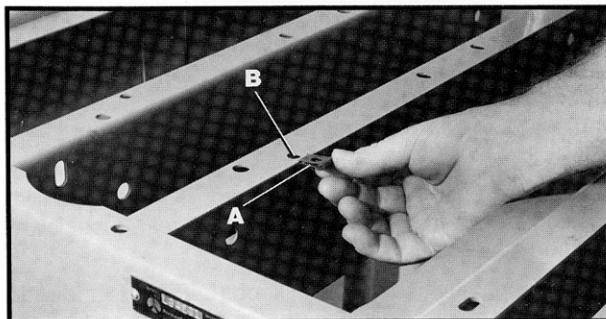


Fig. 25

2. The front table board is shown in Fig. 26. The top of the table board can be identified by the five counterbored holes. One additional hole (C) Fig. 26, is not counterbored, and the tee nut (D) should be inserted into hole (C) from the bottom of the table.

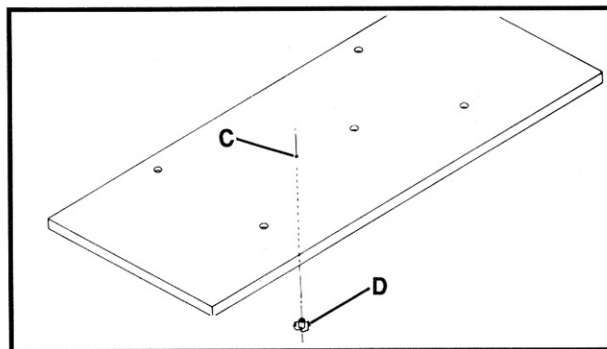


Fig. 26

3. Place the front table board (E) Fig. 27, on the table frame so the counterbored holes face up. The hole (C) Fig. 27, that is not counterbored should be to the left of center as you face the saw.

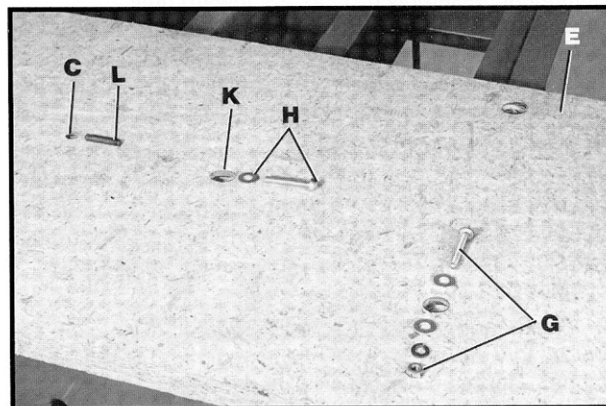


Fig. 27

4. Align the four outer holes in the front table board with the holes in the table mounting brackets (F) Fig. 28, on both sides of the table. Fasten the front table board to the table mounting brackets with four 1½ inch-long round head screws (G) Figs. 27 and 28, eight flat washers, four lock-washers and hex nuts. **NOTE:** Do not tighten hardware at this time.

5. Insert the one remaining 1½ inch-long round head screw and flat washer (H) Fig. 27, into counterbored hole (K) and thread into Tinnerman nut which was assembled to saw frame in **STEP 1**. **NOTE:** Do not over-tighten screw at this time.

6. Insert 1¼ inch-long slotted head screw (L) Fig. 27, into hole (C) and thread screw into tee nut which was inserted into the underside of table board in **STEP 2**. **NOTE:** Do not over-tighten set screw at this time.

7. Using an adjustable square (M) Fig. 28 as shown, check the right and left front edge of the table board to make certain both sides are the same distance from the edge of the table mounting brackets (F). Tighten table mounting screws, two of which are shown at (G) Fig. 28, on both sides of the table.

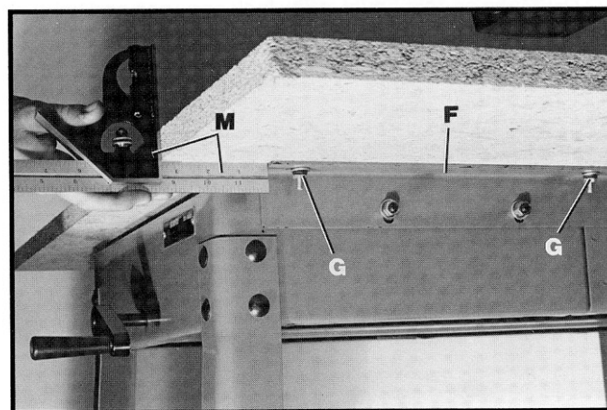


Fig. 28

8. Assemble table board clamp (N) Fig. 29, in the slotted hole at the rear of the table mounting bracket (F) as shown. Assemble remaining table board clamp to the other table mounting bracket in the same manner.

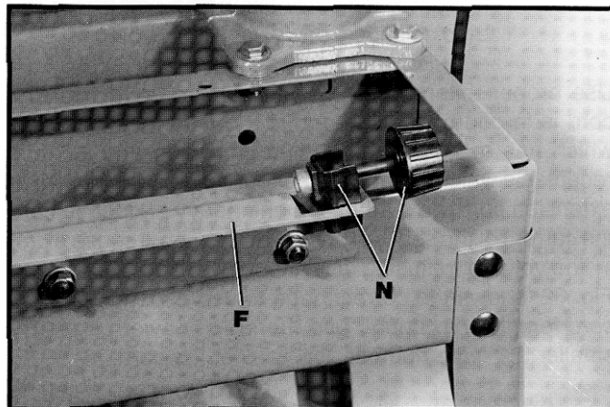


Fig. 29

9. Place the remaining two table boards (P) and (R) Fig. 30, on the table mounting brackets between the front table board (E) and table clamp knobs (N). Insert fence (S) Fig. 30, between table boards (P) and (R). Tighten table clamp knobs (N).

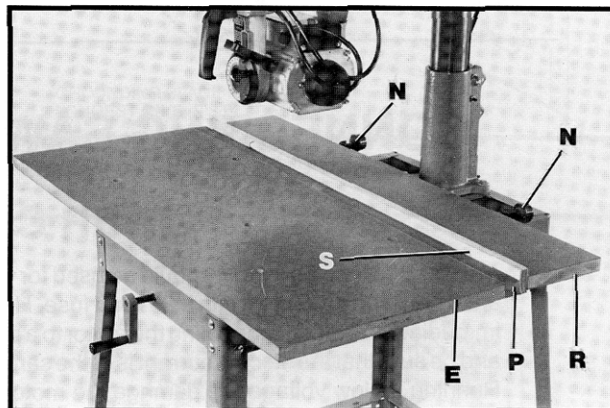


Fig. 30

10. Check the front table to see if it is laying flat on the table frame. Place a level (T) Fig. 31, on the table as shown. If the table is high, tighten round head screw (H) Fig. 27. If the table is low, tighten set screw (L).

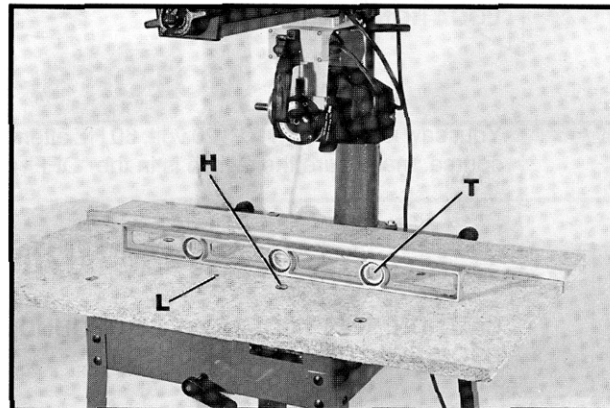


Fig. 31

“LEVELING” THE SAW

The saw should be level from side to side and tilted slightly towards the rear to prevent the cuttinghead from free rolling towards the operator. If the saw is mounted on the legs, adjust the leveling screws until the saw stands firmly in the correct position and tighten the lock nuts. If the saw is mounted on a bench, place shims between the saw base and the bench to achieve the correct position and then securely bolt the saw to the bench. Loosen the cuttinghead clamp knob and test the cuttinghead to be sure it will not free roll forward. Slightly more effort should be required to pull the cuttinghead forward than to push it to the return position.

FASTENING SAW TO THE FLOOR

IF DURING OPERATION THERE IS ANY TENDENCY FOR THE SAW TO TIP OVER, SLIDE OR WALK ON THE SUPPORTING SURFACE, THE SAW SHOULD BE SECURED TO THE FLOOR SURFACE.

EXTENSION CORDS

Use proper extension cords. Make sure your extension cord is in good condition and is a 3-wire extension cord which has a 3-prong grounding type plug and a 3-pole receptacle which will accept the tool's plug. When using an extension cord, be sure to use one heavy enough to carry the current of the saw. An undersized cord will cause a drop in line voltage, resulting in loss of power and overheating. Fig. 32, shows the correct gage to use depending on the cord length. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord.

TOTAL LENGTH OF CORD IN FEET		GAGE OF EXTENSION CORD TO USE
120 VOLT	240 VOLT	
25	50	14 AWG
50	100	12 AWG
Over 100		Not Recommended

Fig. 32

CONNECTING SAW TO POWER SOURCE

POWER CONNECTIONS

A separate electrical circuit should be used for your tools. This circuit should not be less than #12 wire and should be protected with a 20 Amp fuse. Have a certified electrician replace or repair a worn cord immediately. Before connecting the motor to a power line, make sure the switch is in the "OFF" position and be sure that the electric current is of the same characteristics as stamped on the motor nameplate. Running on low voltage will damage the motor.

WARNING: DO NOT EXPOSE THE TOOL TO RAIN OR OPERATE THE TOOL IN DAMP LOCATIONS.

MOTOR SPECIFICATIONS

Your saw is wired for 110-120 volt, 60 HZ alternating current. Before connecting the saw to the power source, make sure the switch is in the "OFF" position.

GROUNDING INSTRUCTIONS

CAUTION: THIS TOOL MUST BE GROUNDED WHILE IN USE TO PROTECT THE OPERATOR FROM ELECTRIC SHOCK.

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided - if it will not fit the outlet, have the proper outlet installed by a qualified electrician.

Improper connection of the equipment-grounding conductor can result in risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded. Use only 3-wire extension cords that have 3-pronged grounding type plugs and 3-hole receptacles that accept the tool's plug, as shown in Fig. 33.

Repair or replace damaged or worn cord immediately.

120 VOLT, SINGLE PHASE OPERATION

This tool must be grounded while in use to protect the operator from electric shock. The motor recommended for use with your saw is shipped wired for 120 Volt, Single Phase, and is equipped with an approved 3-conductor cord and 3-prong grounding type plug to fit the proper grounding type receptacle, as shown in Fig. 33. The green conductor in the cord is the grounding wire. Never connect the green wire to a live terminal.

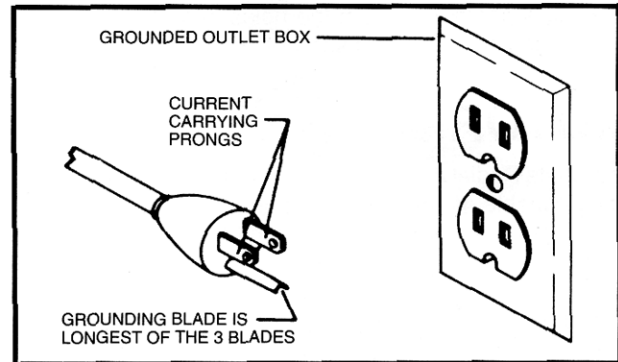


Fig. 33

A temporary adapter, shown in Fig. 34, is available for connecting 3-prong grounding type plugs to 2-prong receptacles if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician. **THIS ADAPTER IS NOT APPLICABLE IN CANADA.** The green-colored rigid ear, lug, etc., extending from the adapter is the grounding means and must be connected to a permanent ground such as to a properly grounded outlet box, as shown in Fig. 34.

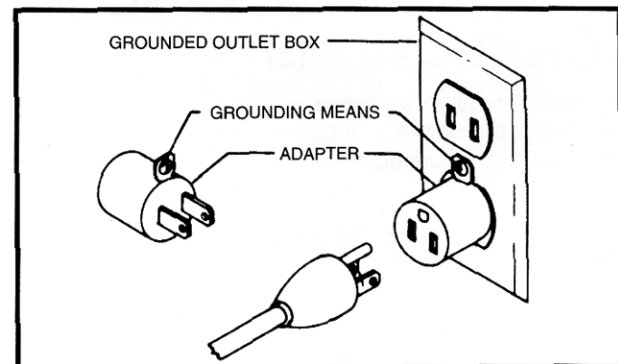


Fig. 34

240 VOLT, SINGLE PHASE OPERATION

The motor supplied with your saw is a dual voltage, 120/240 volt motor. If it is desired to operate your saw at 240 volts, single phase, it is necessary to reconnect the motor leads in the motor junction box by following the instructions given on the motor nameplate. **WARNING: MAKE SURE MOTOR IS DISCONNECTED FROM POWER SOURCE BEFORE RECONNECTING MOTOR LEADS.** It is also necessary to replace the 120 volt plug, supplied with the motor, with a UL/CSA Listed plug suitable for 240 volts and the rated current of the saw as illustrated in Fig. 35. Contact your local Authorized Delta Service Center or qualified electrician for proper procedures to install the plug. The saw must comply with all local and national electrical codes after the 240 volt plug is installed.

The saw with a 240 volt plug should only be connected to an outlet having the same configuration as the plug illustrated in Fig. 35. No adapter is available or should be used with the 240 volt plug.

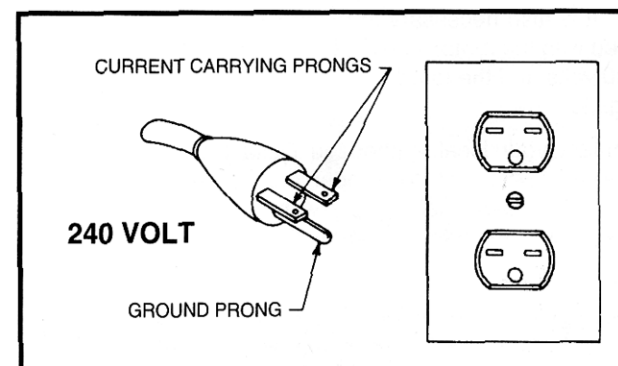


Fig. 35

CAUTION: IN ALL CASES, MAKE CERTAIN THE RECEPTACLE IN QUESTION IS PROPERLY GROUNDED. IF YOU ARE NOT SURE HAVE A CERTIFIED ELECTRICIAN CHECK THE RECEPTACLE.

ON/OFF SWITCH

The on/off switch (A) Fig. 36, is located at the front of the cuttinghead. To turn the saw "ON" move the switch to the up position. To turn the saw "OFF" move the switch (A) Fig. 36, to the down position. **WHEN THE SAW IS NOT IN USE, WE RECOMMEND THAT THE SWITCH BE LOCKED IN THE "OFF" POSITION.** This can be done by inserting a padlock through the holes in switch plate (B) Fig. 37, and handle (C) as shown.

MOTOR

Your Delta Radial Arm Saw is equipped with a dual voltage motor capable of 120 volt, single phase operation or 240 volt, single phase operation. The motor on your saw is shipped from the factory wired for 120 volt operation. Built into the motor is a fail safe type brake which auto-matically stops the blade within seconds after turning off the saw or when power is lost.

CHANGING VOLTAGE CONNECTIONS

The motor supplied with your saw is wired for 120 volt operation. If you desire to operate your saw at 240 volts, it is necessary to reconnect the motor leads inside the motor junction box (A) Fig. 38. Proceed as follows:

1. **WARNING: MAKE CERTAIN THE MACHINE IS DISCONNECTED FROM THE POWER SOURCE.**
2. Remove four screws, two of which are shown at (B) and remove nameplate cover (C).
3. Carefully reconnect the leads in the motor junction box (A) by following instructions on the nameplate (C).
4. It is also necessary to replace the 120 volt plug supplied with the motor with a UL/CSA listed plug suitable for 240 volts and the rated current of the saw as illustrated in Fig. 35.

Contact your local Authorized Delta Service Center or qualified electrician for proper procedures to install the plug. The saw must comply with all local and national electrical codes after the 240 volt plug is assembled.

OVERLOAD PROTECTION

The motor on your saw is equipped with a reset overload relay button (D) Fig. 38. If the motor shuts off or fails to start due to overloading (cutting stock too fast, using a dull blade, using the saw beyond its capacity, etc.) or low voltage, turn the switch to the "OFF" position, let the motor cool three to five minutes and push the reset button (D) which will reset the overload device. The motor can then be turned on again in the usual manner.

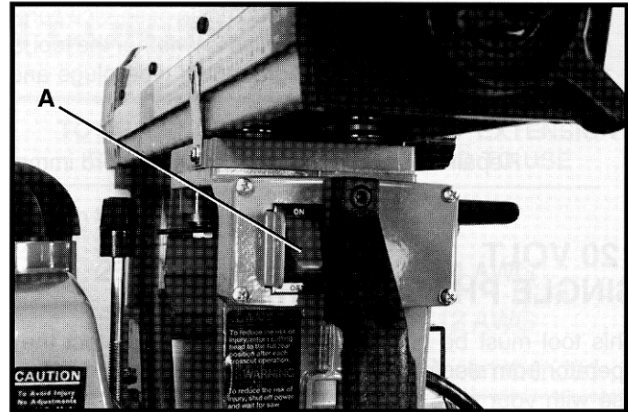


Fig. 36

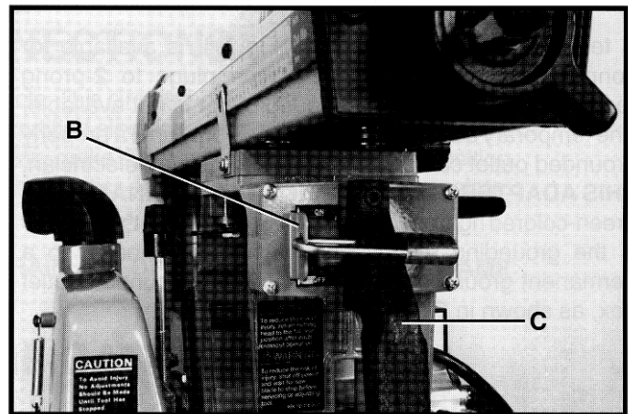


Fig. 37

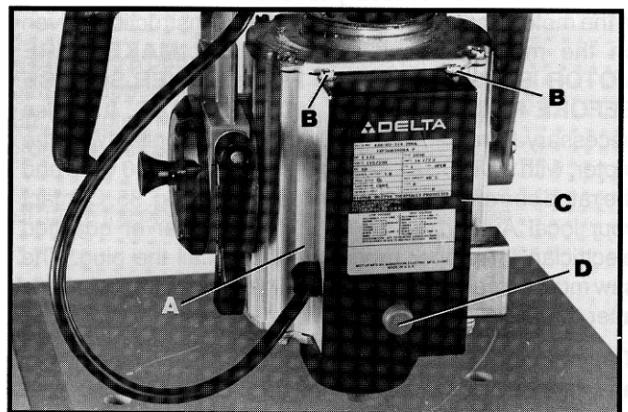


Fig. 38

OPERATING CONTROLS AND ADJUSTMENTS

ADJUSTING BALL BEARINGS AGAINST TRACK

The cuttinghead is suspended from four pre-loaded, lubricated, shielded ball bearings, two of which are on fixed shafts and two on eccentric shafts.

After extended use, wear may develop in the track arm causing "play" between the ball bearings and the track. The ball bearings must ride smoothly and evenly in the channels of the track arm. Adjustment to the two bearings on eccentric shafts to eliminate "play" can be made as follows:

1. **Make certain the machine is disconnected from the power source.**
2. Loosen two screws, one of which is shown at (C) Fig. 39, that hold track arm end cap.
3. Remove eight screws, four of which are shown at (D) Fig. 39, and remove cover (E) from top of track arm.
4. Loosen two locknuts (A) Fig. 40, on the adjustable bearings.
5. With wrenches supplied, turn eccentric nuts (B) Fig. 40, clockwise to remove "play". Tighten two locknuts (A). Check for any "play" in the track arm and make certain the cuttinghead assembly (F) Fig. 39, moves freely in the track arm.
6. Replace top track arm cover (E) Fig. 39, and fasten with eight screws (D), which were removed in **STEP 3**.

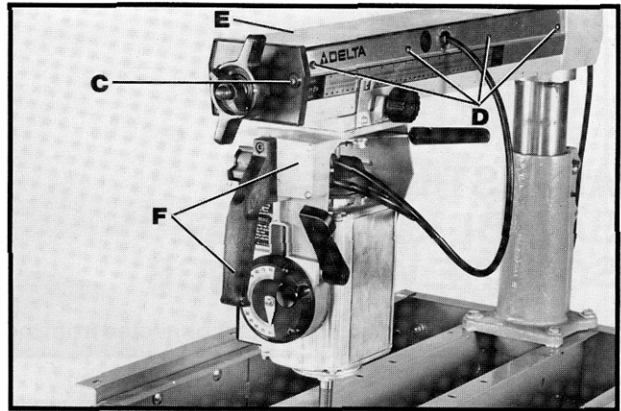


Fig. 39

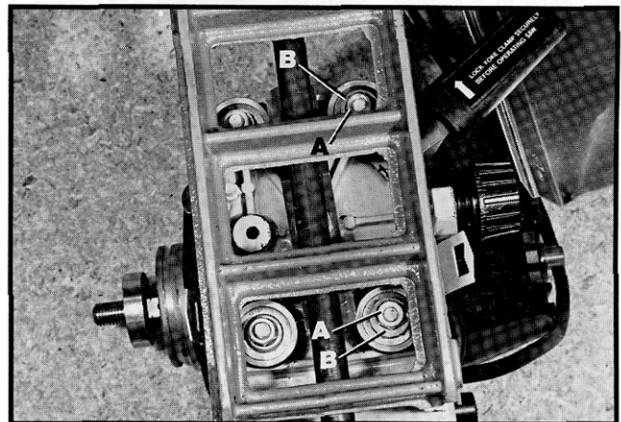


Fig. 40

ADJUSTING TENSION ON ELEVATING COLUMN

Elevating column tension is preset at the factory; however, it can be adjusted. If increased tension on the elevating column is desired, loosen the two locknuts (A) Fig. 41, and tighten two screws (B) until column operates smoothly. Tighten locknuts (A). If the elevating column binds in the column bracket, the bracket must be spread slightly. Loosen the two locknuts (A) Fig. 41, and slightly back off two screws (B). Hold the hex head of each screw (B) with a wrench and turn its locknut (A) towards the hex thus spreading the column bracket. **NOTE:** After adjusting column tension refer also to "ADJUSTING SAW BLADE TRAVEL SQUARE WITH FENCE."

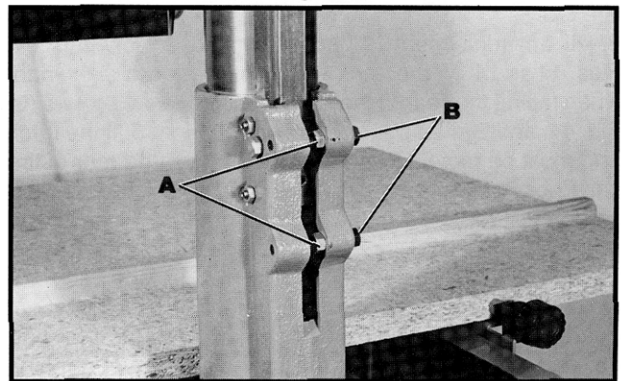


Fig. 41

ADJUSTING TENSION ON TRACK ARM INDEX

Tension on the track arm index is set at the factory; however, it can be adjusted. If the track arm index does not drop in readily, very slightly loosen the two adjusting screws (A) Fig. 42, using an Allen key. If "play" exists in the track arm index or it feels loose, very slightly tighten the two adjusting screws (A).

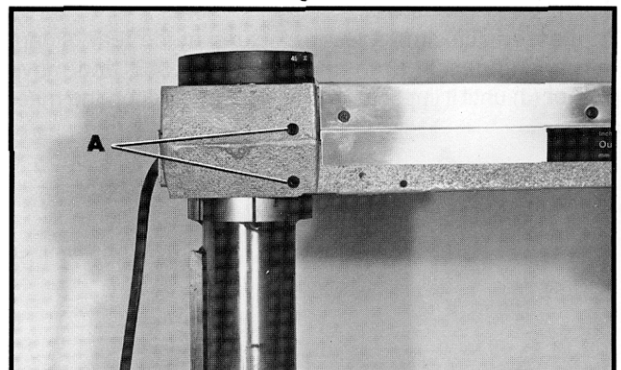


Fig. 42

ADJUSTING SAW BLADE TRAVEL SQUARE WITH FENCE

1. Make certain the machine is disconnected from the power source.

2. Assemble one of the wrenches (A) Fig. 43 supplied, vertically to the arbor shaft by clamping it between two flanges (B) on the arbor shaft. **NOTE:** Arbor nut has a left hand thread.

3. Rotate track arm (C) Fig. 43, to the cross-cut position as shown, with the pointer on zero on the miter scale (D). Tighten track arm clamp (E).

4. Lower track arm (C) Fig. 43, until wrench (A) just clears the table surface. Place a framing square (F) Fig. 43, on the table with one end of the square against the fence (G) and the other end against wrench (A) as shown.

5. Loosen cuttinghead clamp knob and slide cuttinghead (H) Fig. 43, the entire length of the track and check to see if the wrench (A) travels parallel to the square (F).

6. If an adjustment is necessary, loosen locknuts (K) Figs. 44 and 45. If the track arm must be moved to the right when facing the rear of the saw, loosen two set screws (L) Fig. 44, and tighten two set screws (M) Fig. 45. If the track arm must be moved to the left when facing the rear of the saw, loosen two set screws (M) Fig. 45, and tighten two set screws (L) Fig. 44. Tighten four locknuts (K) Figs. 44 and 45. **IMPORTANT:** When you are certain the saw blade travel is square with the fence, check to see if the track arm elevating mechanism operates smoothly. If it does not operate smoothly, adjust screws (L) and (M) Figs. 44 and 45, and being careful that the saw blade travel remains square with the fence (wrench travels parallel to the square).

7. Loosen adjustment screw, located at the rear of cap, with a long handle allen wrench (H) Fig. 46, and move pointer (J) until it lines up with the "zero" mark on the miter scale.

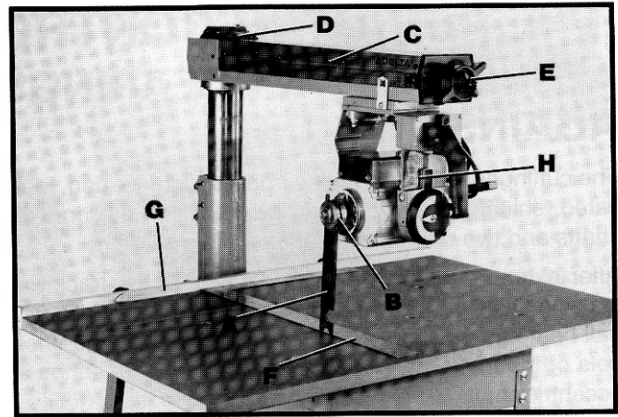


Fig. 43

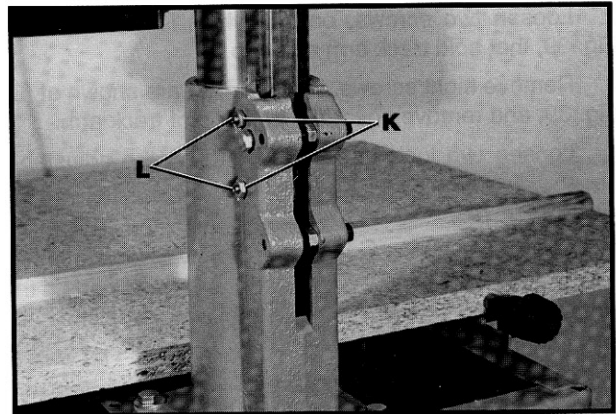


Fig. 44

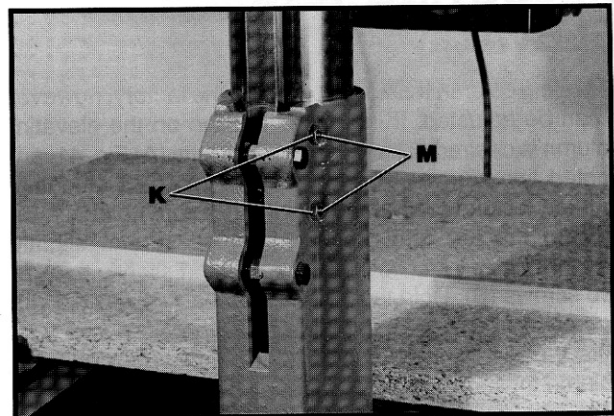


Fig. 45

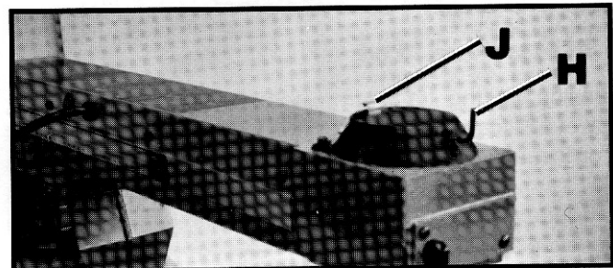


Fig. 46

CHECKING AND ADJUSTING SAW BLADE SQUARE WITH TABLE

1. Make certain the machine is disconnected from the power source.
2. Assemble the inner blade flange, saw blade, outer blade flange and arbor nut on saw arbor.
3. Place the cuttinghead in a cross-cut position as shown in Fig. 47. Lower track arm until the saw blade is just clear of the table and slide the cuttinghead forward until it is positioned over the front table board; clamp the cuttinghead in position.
4. Make certain the bevel index knob (A) Fig. 47, is engaged and the motor is in a horizontal position with the pointer on the "zero" mark on bevel scale (B). Tighten bevel clamp lever (C).
5. Place a square (D) Fig. 47, on the table and against the saw blade, as shown, and check to see if the blade is square with the table. **NOTE:** The square should rest between two teeth of the saw blade.
6. If an adjustment is necessary, make certain bevel clamp lever (C) Fig. 48, is tight. Remove screw, flat washer and pointer (E) Fig. 48. Remove two screws (F) Fig. 48, and bevel scale plate (B), with index knob (A).
7. Loosen four hex head screws (G) Fig. 49. Tilt the motor until the saw blade is flush with the square. Tighten four hex head screws (G).
8. Replace bevel scale plate (B) Fig. 49, with index knob, two screws and pointer that were removed in **STEP 6**. **NOTE:** Adjust pointer to "zero" on the bevel index scale.

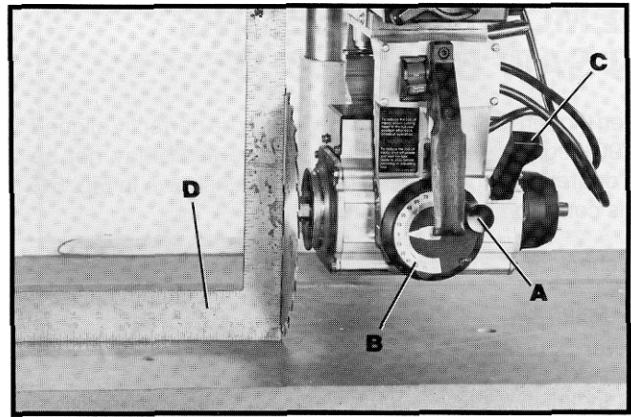


Fig. 47

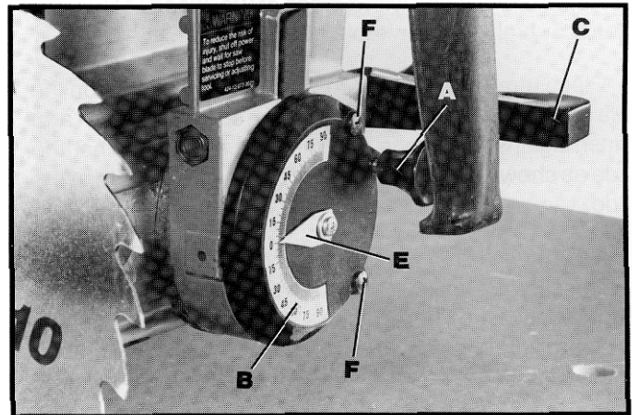


Fig. 48

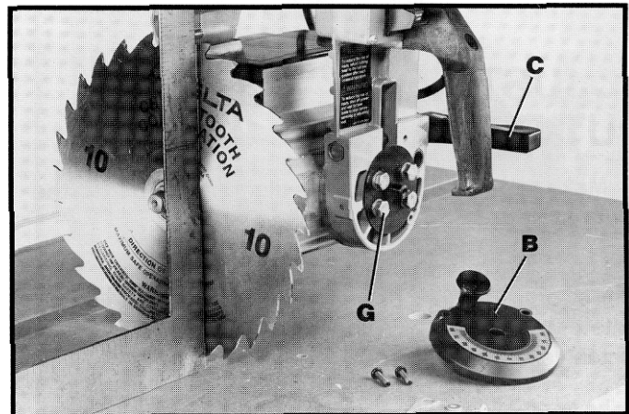


Fig. 49

CHECKING AND ADJUSTING FRONT TABLE

The front table board should be checked with a straight edge to determine if the table is flat.

1. Place the straight edge (A) on the table as shown in Fig. 50, to determine if an adjustment is necessary.
2. If the table is high, tighten 1/4-20 x 1 1/2" round head machine screw (B) Fig. 50.
3. If the table is low, tighten 1/4-20 x 1 1/4" slotted set screw (C) Fig. 50.
4. Once the table is flat, snug up the two screws (C) and (B) Fig. 50.

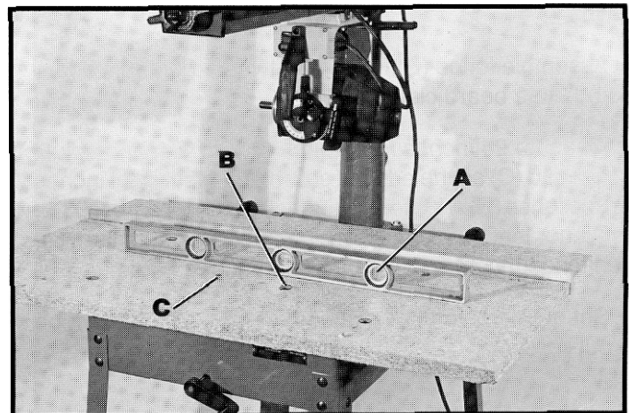


Fig. 50

REMOVING “HEELING” IN SAW BLADE CUT

Even though the cuttinghead travel may be perfectly aligned at 90 degrees to the fence, the blade itself may not be 90 degrees or square with the fence, as shown in Fig. 51. This condition is known as “heeling”.

To check and adjust proceed as follows:

1. **Make certain the machine is disconnected from the power source.**
2. Install saw blade without guard.
3. Replace the fence with a piece of 3/4" wood (A) Fig. 52, at least 5" high. Tighten table board clamps.
4. Place three identical pieces of wood (B) Fig. 52, on the table and lay a framing square on them so that the short arm is flush against the fence and the long arm is against the blade as shown. Be sure square is between the teeth of the blade.
5. If the blade is not parallel to the square, an adjustment is necessary. Release the yoke clamp handle (C) Fig. 53, and loosen two hex head screws (D). Swivel the yoke until the blade is parallel with the square and tighten yoke clamp handle (C).
6. Tighten two hex screws (D) Fig. 53.

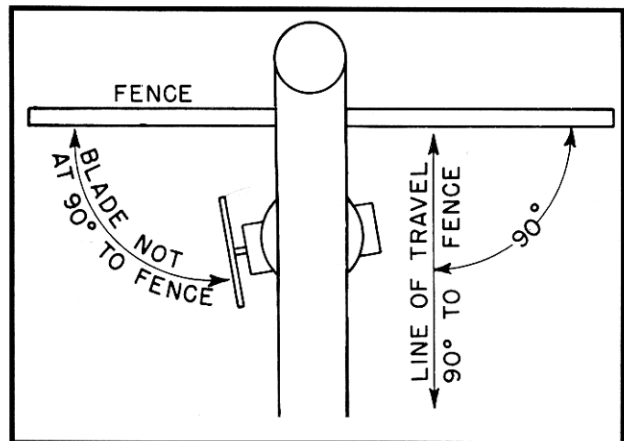


Fig. 51

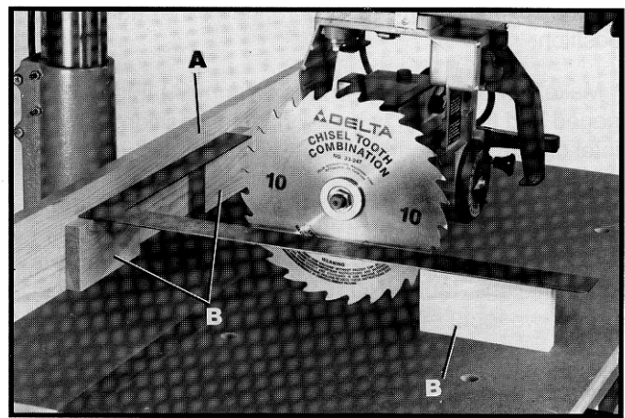


Fig. 52

ADJUSTING OUT-RIP SCALE

1. **Make certain the machine is disconnected from the power source.**
2. Loosen yoke clamp lever (A) Fig. 54. Release yoke index by pressing up or down on yoke clamp lever (B), and rotate cuttinghead (C) to the out-rip position as shown. Tighten yoke clamp lever (A).
3. Lower track arm (D) Fig. 54, until blade just clears the table and slide cuttinghead (C) to front end of track arm as shown.
4. Assemble fence (E) Fig. 54, between rear table board (F) and table board clamps (G).
5. Measure 24 inches from fence (E) Fig. 54, and adjust cuttinghead (C) so the edge of saw blade teeth is 24 inches from the fence (E). Tighten cuttinghead clamp knob. **NOTE:** Push inner leaf on blade guard (H) Fig. 54, out of the way when measuring the distance from fence to blade.
6. Set out-rip pointer (K) Fig. 54, at the 24 inch mark on the out-rip scale.

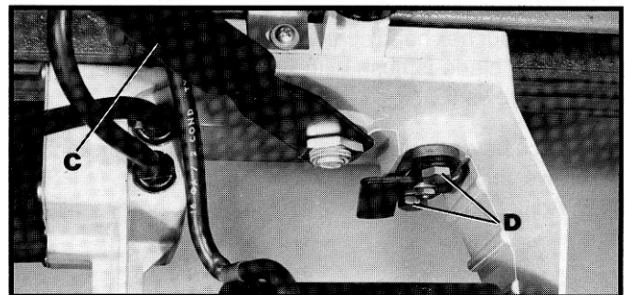


Fig. 53

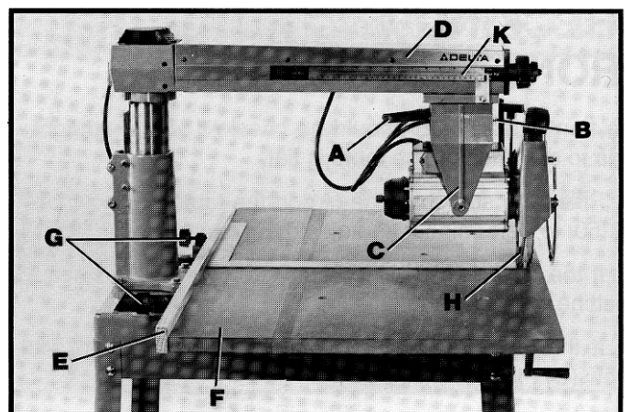


Fig. 54

ADJUSTING IN-RIP SCALE

1. Make certain the machine is disconnected from the power source.
2. Loosen yoke clamp lever (A) Fig. 55. Release yoke index by pressing up or down yoke index lever (B) and rotating cuttinghead (C) to the in-rip position as shown. Tighten yoke clamp lever (A).
3. Assemble fence (D) Fig. 55, between rear table board and table clamps.
4. Loosen cuttinghead clamp knob (E) Fig. 55, and slide cuttinghead (C) to rear of track arm until saw blade (F) is flush against fence (D). **NOTE:** Lift leaf (G) of guard to clear fence.
5. Tighten cuttinghead clamp knob (E) Fig. 55, and set in-rip pointer (H) to "zero" mark on in-rip scale.

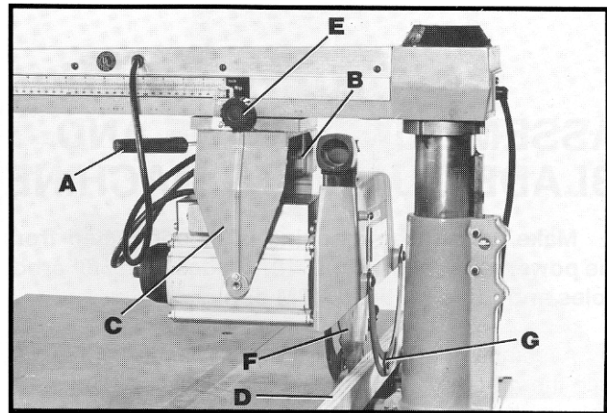


Fig. 55

POSITIVE STOP YOKE INDEX

Yoke index lever (A) Fig. 56, operates a positive stop which positions the cuttinghead in the cross-cut or rip position. To rotate the cuttinghead, release yoke clamp handle, press up or down on yoke index lever (A), releasing the positive stop and rotate the cuttinghead to the in-rip or out-rip or cross-cut position as desired. Release the yoke index lever (A) Fig. 56, and the cuttinghead will automatically index at each of the three positions above.

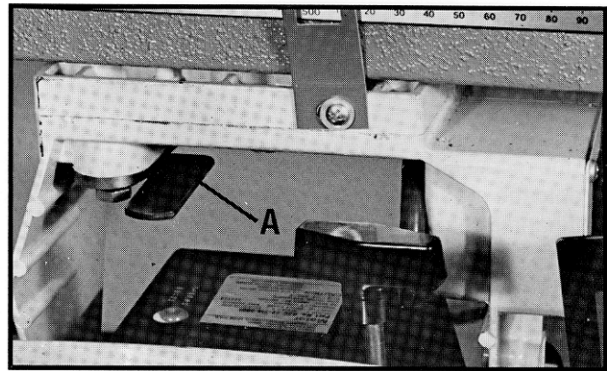


Fig. 56

POSITIVE STOP BEVEL INDEX

Bevel index knob (A) Fig. 57, provides a positive stop when positioning the saw blade at zero, 45° and 90° left, and 45° and 90° right on the bevel scale (C). To change the angle of the saw blade loosen bevel clamp handle (B), pull out bevel index knob (A) and tilt saw blade and motor. For zero, 45° and 90° left, and 45° and 90° right positions, let go of bevel index knob (A) and saw blade will index at each of these positions. Then tighten bevel clamp handle (B). For saw blade angles between positive stops, set blade at desired angle on bevel scale (C) and tighten bevel clamp handle (B) Fig. 57.

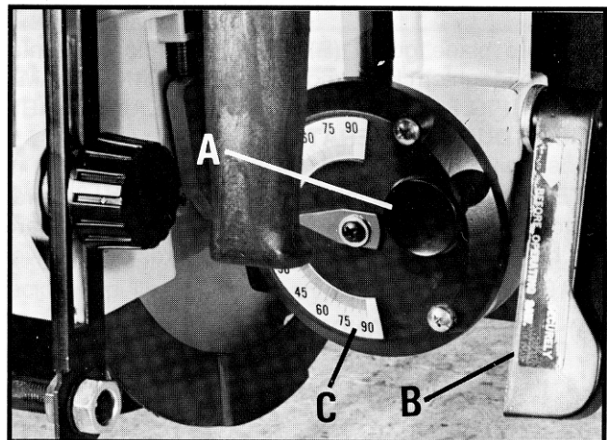


Fig. 57

CHANGING POSITION OF YOKE CLAMP HANDLE

When the yoke clamp handle (A) Fig. 58, does not lock in a convenient position, it can be repositioned as follows:

1. Loosen Pal-nut (B) Fig. 58.
2. Reposition yoke clamp handle (A) Fig. 58, on hex clamp nut.
3. Tighten Pal-nut (B) Fig. 58.

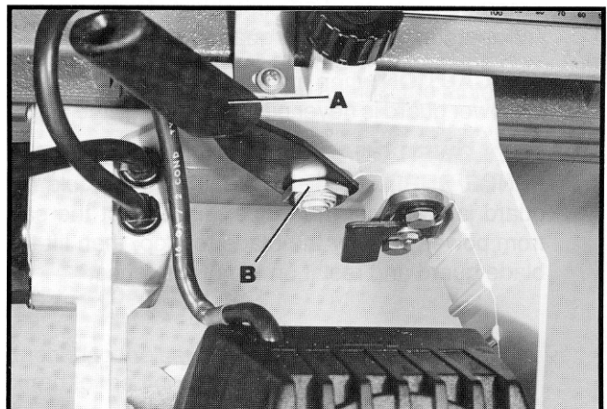


Fig. 58

ASSEMBLING BLADE AND BLADE GUARD TO MACHINE

1. Make certain the machine is disconnected from the power source. Use only 10" blades with 5/8" arbor holes and rated for 5000 RPM or higher.

2. Assemble the inside (thick) arbor flange (A) Fig. 59, onto the arbor shaft with the recessed side of flange (A) facing out.

3. With the blade guard (B) Fig. 60, in the left hand, insert saw blade (C) into the blade guard (B) and onto the arbor shaft.

4. Assemble the outside (thin) blade flange (D) Fig. 60, with the recessed side of flange (D) facing in and arbor nut (E) onto the arbor shaft. **NOTE:** Arbor nut (E) Fig. 60, has a left hand thread.

5. Lift cam (F) Fig. 61, and assemble blade guard (B) onto cuttinghead assembly.

6. Rotate blade guard (B) Fig. 62, to the rear and tighten arbor nut (E) using two wrenches (G) supplied.

7. Rotate blade guard (B) Fig. 61, to the horizontal position and tighten clamp knob (H). **IMPORTANT: CLAMP KNOB (H) FIG. 60, MUST BE TIGHT AND BLADE GUARD SECURE DURING OPERATION.**

NOTE: The lower retractable blade guard provides operator protection in an axial direction to the saw blade. Care must be taken to eliminate potential hazards of the lower blade guard.

- A) **KEEP YOUR HANDS AWAY FROM THE GUARD.** As the blade cuts, the guard will lift and leave part of the blade exposed.
- B) **SHUT OFF POWER BEFORE FREEING A JAMMED LOWER GUARD.** The guard can get jammed in previous kerfs in table or fence. Always anticipate the path of the guard.
- C) **USE CAUTION** when making bevel cuts to be sure the lower guard is never pinched towards the blade.
- D) **THE LOWER GUARD CAN JAM AGAINST THE FENCE DURING NARROW IN-RIPS.** Should the guard jam against the fence, disconnect the saw from power, wait for the blade to stop, then lift the blade guard and rest it on top of the fence.

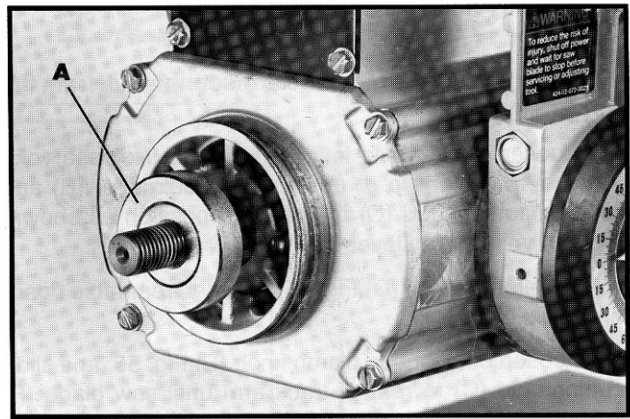


Fig. 59

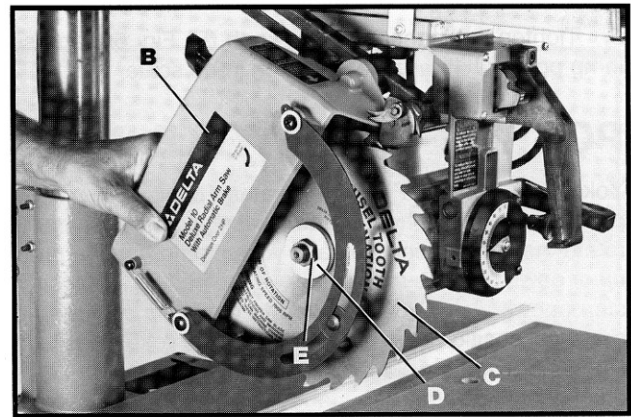


Fig. 60

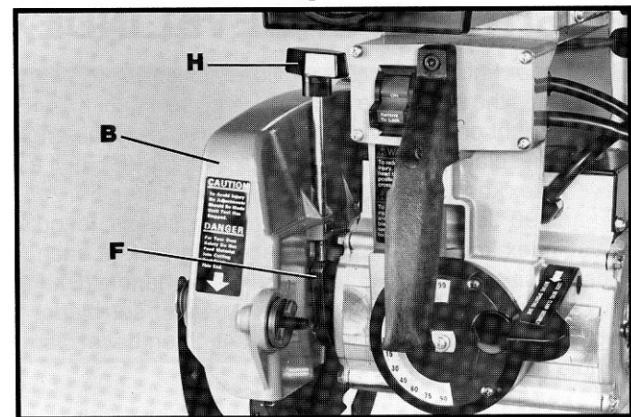


Fig. 61

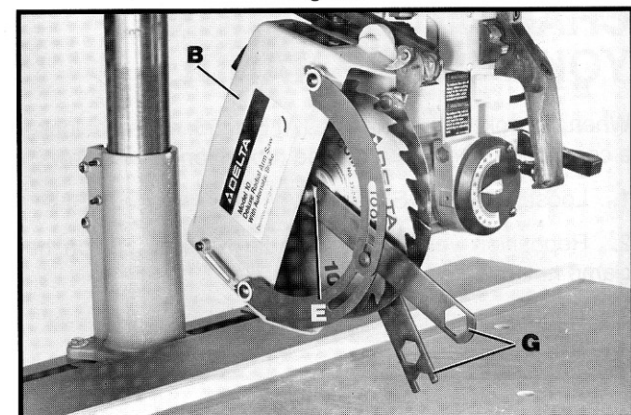


Fig. 62

CHANGING POSITION OF BEVEL CLAMP HANDLE

When the bevel clamp handle does not lock in a convenient position, it can be repositioned as follows:

1. Loosen bevel clamp handle (A), release bevel index knob (B) and turn motor (C) to vertical position as shown in Fig. 63.
2. Loosen bevel clamp handle (A) Fig. 63, several turns, until hex head of screw (D) can be pushed out of hex shaped recess in yoke.
3. Turn screw (D) Fig. 63, one or two flats of the hex head and push it back into hex shaped recess in yoke.
4. Tighten bevel clamp handle (A) Fig. 63. **NOTE:** Screw is left hand thread - turn clamp handle counterclockwise to tighten.

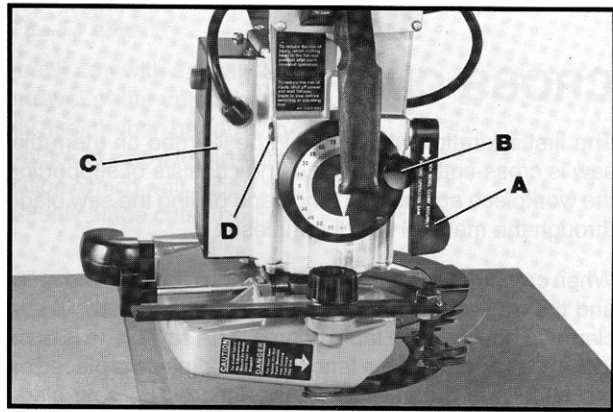


Fig. 63

ADJUSTING SPLITTER AND ANTI-KICKBACK FINGERS

During ripping operations, the splitter (A) Fig. 64, should be adjusted so that it rides in the saw kerf. The anti-kickback fingers (B) should be adjusted so that the fingers catch and hold the workpiece in case it is thrown back towards the operator by the saw blade (commonly known as kickback).

1. Set the saw up in the ripping position with the blade guard lowered on the infeed side to act as a holddown.
2. Start a piece of material through the saw as shown in Fig. 64.
3. **Shut off saw and disconnect from power source.**
4. Adjust the arm (C) Fig. 64, so that it is vertical and the splitter (A) is in the saw kerf. The straight side of the splitter should be towards the blade as shown in Fig. 64, and the anti-kickback fingers should rest on the workpiece. **NOTE:** The clamp knob for arm (C) must be tight. Wiggle arm (C) while tightening clamp knob with other hand to be sure clamp is firmly seated and tight.

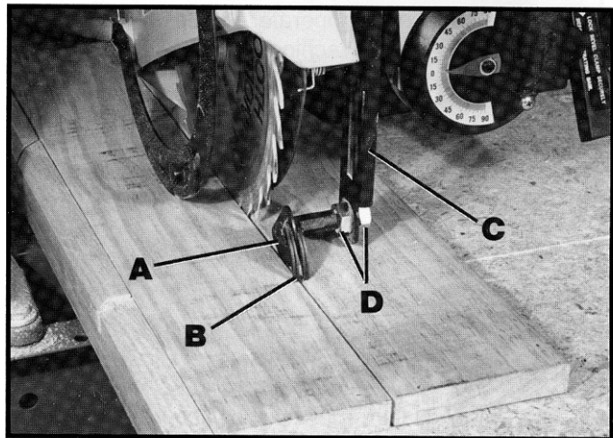


Fig. 64

5. If the splitter does not line up with the saw kerf, adjust hex nuts (D) until it does.
6. Pull backwards on the workpiece to check if the anti-kickback fingers bite into the material and prevent further backward pulling. If necessary, readjust height of arm (C) Fig. 64.

AUXILIARY TABLE BOARD FACING

To prevent repeated cutting into the table surface which will eventually cause the table to sag, an auxiliary table board facing can be cut and fitted to the table. It can be made from 1/4" plywood or particle board and should be cut to a size that will exactly cover all of the table boards in front of the fence. The auxiliary table board facing should be placed flat on the table and butted against the table fence. Fasten it to the table with a small brad or finish nail in each corner.

The life of the table boards will be greatly extended by the use of an auxiliary facing. The auxiliary facing can readily be replaced as often as is necessary to protect the table boards and to insure accurate and safe work.

USING A TABLE EXTENSION

When a table extension more than 24 inches long is attached to the saw, a sturdy outrigger support should be provided or the stand or bench must be secured to the floor.

OPERATIONS

CROSS-CUTTING

The first operation which should be learned on the radial saw is cross-cutting. Cross-cutting consists of supporting the workpiece against the fence and pulling the saw blade through the material at right angles to it.

When cross-cutting, the track arm should be indexed at "0" and the track arm clamp tightened. The fence should be clamped between the table boards. The saw blade is to be to the left and behind the fence. The workpiece is placed on the table and butted against the fence. The saw blade should be clear of the fence and table when the machine is turned on. Then the saw blade is lowered until it lightly cuts into the table surface. The operator should position himself a little to the left of the machine for better visibility while cutting. Pull the saw blade across the work, just far enough to cut it off, and return the saw blade to its starting position. Wait for the blade to stop before touching the cut off piece. The operator should always be sure to return the cutterhead carriage to the full rear position after each cross-cut operation.

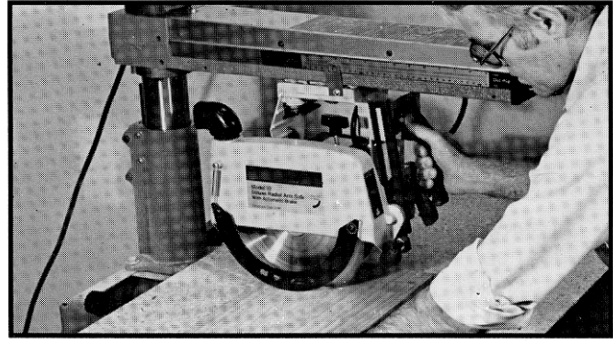


Fig. 65

NOTE: When cross-cutting material more than 1" thick, the fence must be positioned immediately behind the fixed front table board.

Fig. 65, shows cross-cutting on the radial saw.

MITER CUTTING

Miter cutting is similar to cross-cutting except the workpiece is cut off at an angle (up to 45 degrees right or left) rather than being cut off square. The settings and operation are performed in the same manner as cross-cutting except that the track arm is first positioned to the desired angle on the miter scale before it is clamped in place. The operator should position the hand holding the workpiece on the opposite side to the direction of the miter so the blade is pulled through the workpiece and away from the hand. Fig. 66, shows a typical miter cutting operation on the radial saw.

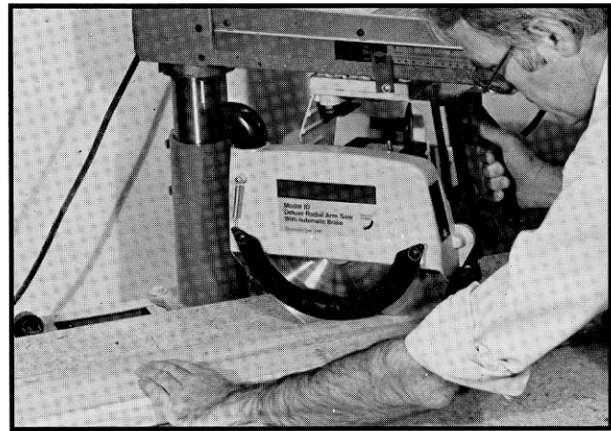


Fig. 66

COMPOUND MITER CUTTING

Compound miter cutting is performed in the same manner as miter cutting except the saw blade is also tilted to cut a bevel. The settings and operation are similar to miter cutting except that the blade is first tilted to the desired angle on the bevel scale before it is clamped in place. Fig. 67, shows a compound miter cutting operation on the radial saw.

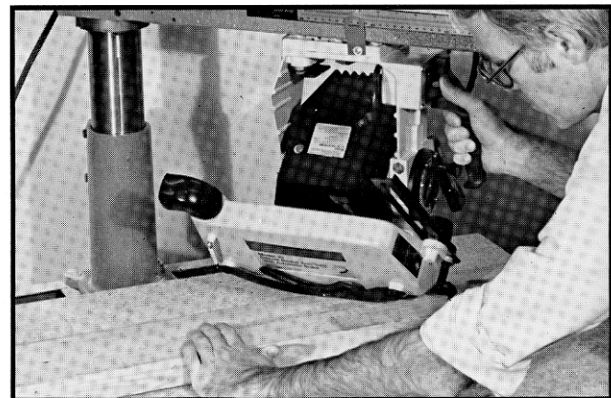


Fig. 67

CROSS-CUT STOP

A block of wood clamped to the track arm with a small "C" clamp will prevent unnecessary travel of the cuttinghead on the track arm. This is especially useful when performing repetitive operations. Clamp the block of wood to the right side of the track arm at a position which will stop the cuttinghead travel as soon as the saw blade cuts through the workpiece.

RIPPING

Ripping involves making a lengthwise cut through a board along the grain. When ripping, the track arm is clamped at "0" on the miter scale. The yoke is then positioned and clamped so that the blade is parallel to the fence in either the inboard or outboard position. When feeding the material, one edge rides against the fence while the flat side of the board rests on the table. The guard should be lowered on the infeed side until it almost touches the workpiece, as shown in Figs. 68 and 69, to act as a holddown. The splitter and anti-kickback fingers (A) Fig. 68, should be adjusted accordingly. The operators hands should always be well away from and to the side of the blade. When ripping narrow work, always use a push stick such as shown in Fig. 69, to push the work between the fence and blade. The workpiece must have one straight edge to follow the fence. If board is bowed, place hollow side down. The cuttinghead clamp knob should be securely tightened for all ripping operations. Pay particular attention to warning label (B) Fig. 69, which states that material must never be fed into the outfeed end of the blade guard.

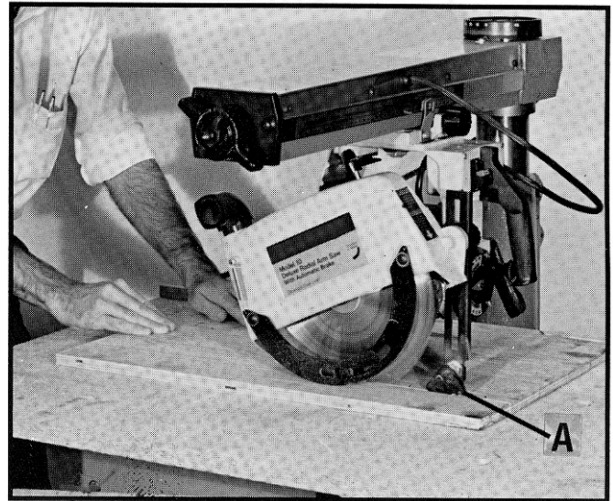


Fig. 68

OUT-RIPPING

Out-ripping involves all of the general conditions stated above. The yoke is clamped at right angle to the track arm with the blade guard facing the front of the machine. The cuttinghead is positioned on the out-rip scale to the desired setting and clamped in position. The workpiece is fed from the left side of the saw. Fig. 68, shows a typical out-ripping operation on the radial saw.

IN-RIPPING

In-ripping involves all of the general conditions stated under **RIPPING**. The yoke is clamped at right angle to the track arm with the blade guard facing the rear of the machine. The cuttinghead is positioned on the in-rip scale to the desired setting and clamped in position. The workpiece is fed from the right side of the saw. Fig. 69, shows a typical in-ripping operation on the radial saw. Note the push stick being used due to the narrow workpiece.

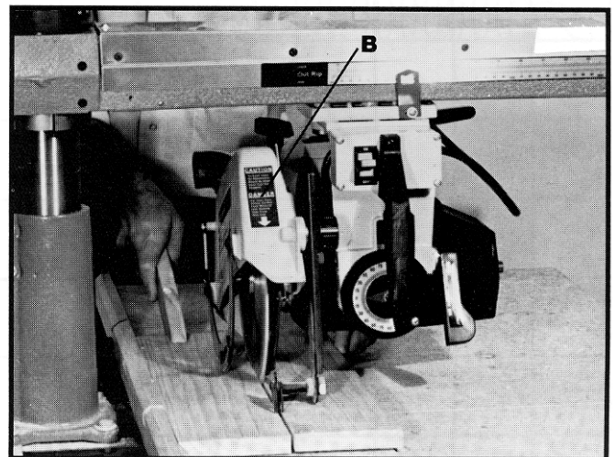


Fig. 69

CONSTRUCTING A PUSH STICK

When ripping work less than 4 inches wide, a push stick should be used to complete the feed and could easily be made from scrap material by following the pattern shown in Fig. 70.

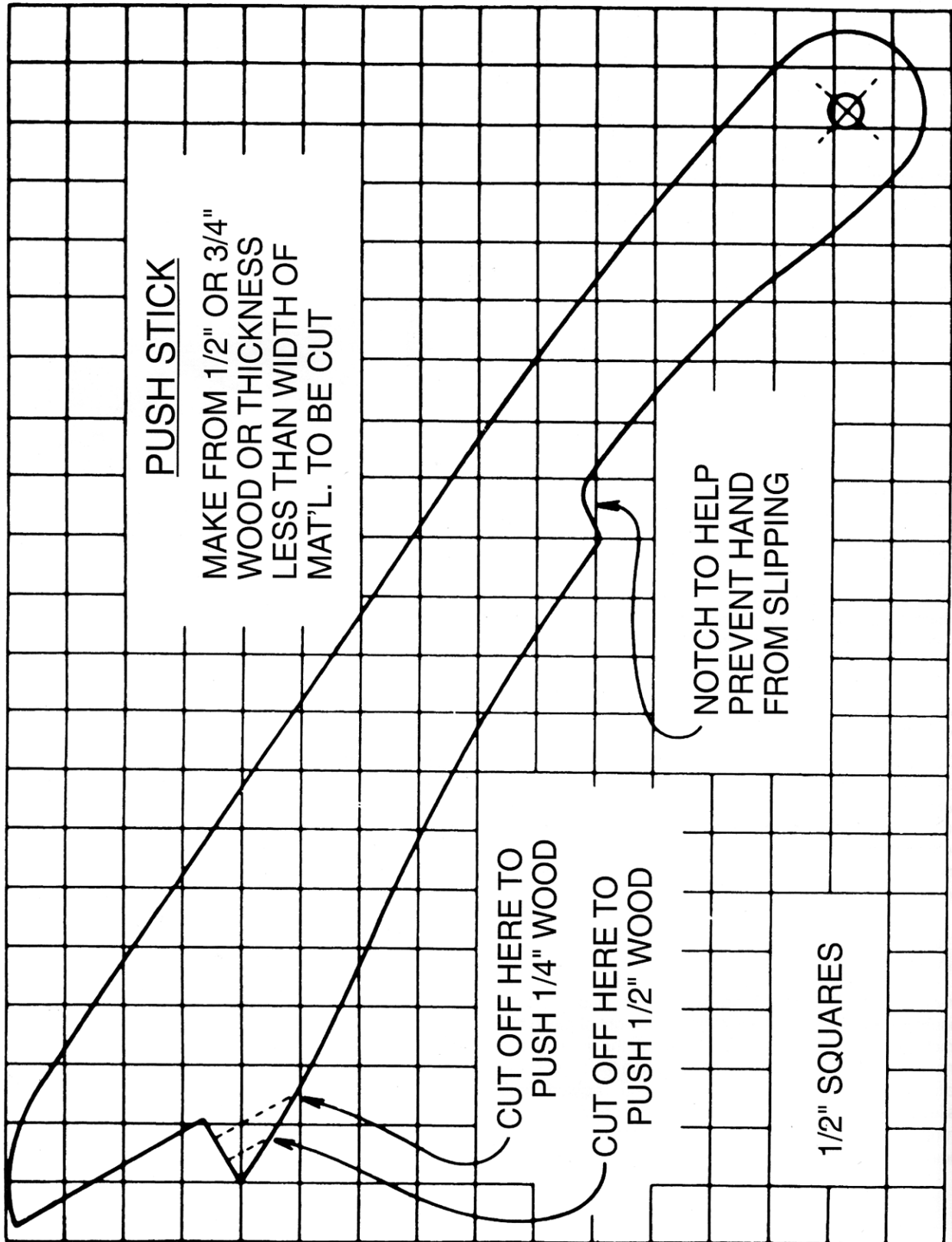


Fig. 70



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